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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,599	02/27/2004	Mark Spellman	11336/602 (P04021US)	9045

27879 7590 09/19/2007

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EXAMINER	
LE, LANA N	

ART UNIT	PAPER NUMBER
2618	

NOTIFICATION DATE	DELIVERY MODE
09/19/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/789,599	SPELLMAN, MARK	
	Examiner	Art Unit	
	Lana N. Le	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8,9,11,12,15-22,26-30,35 and 42-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *5* is/are allowed.

6)☒ Claim(s) *1-4, 6,8,9,11,12,15-22,26-30,35 and 42-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4, 6-11, 15, 18, 20-22, and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eggers et al (US 5,910,996) in view of Katayama et al (US 7,133,730) (hereinafter Katayama).

Regarding claim 1, Eggers et al and Katayama disclose a radio receiver (fig. 3) and audio system comprising: a first tuner (34) configured to connect with an inherent antenna and to generate a first audio signal; a second tuner (35) configured to connect with the antenna and to generate a second audio signal; a switching circuitry (41) connected with the first tuner (34) and the second tuner (35) configured to receive the first audio signal and the second audio signal, where the first audio signal and the second audio signal are processed by the switching circuit to generate a first audio output signal (audio output to 42) and a second audio output signal (audio output to 43);

a first audio power amplifier (42) connected with the switching circuit and configured to receive the first audio output signal; and a second audio power amplifier (43) connected with the switching circuit configured to receive the second audio output signal (col 2, lines 35-41; col 3, lines 16-30; col 6, lines 5-10). Eggers et al do not

disclose a DSP circuitry for digitally processing the first audio signal to generate a second processed audio output signal and to also digitally process the second audio signal to generate a second processed audio output signal. Katayama discloses a DSP (DSP) circuitry for digitally processing the first audio signal to generate a first processed audio output signal and to also digitally process the second audio signal to generate a second processed audio output signal (fig. 11; col 1, line 16 - col 2, line 30) wherein DSP process the first and second audio signal one at a time to generate a first processed audio output signal and a second processed audio output signal). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a DSP in order to execute various well known sound field processing functions such as demodulating and filtering.

Regarding claim 15, Eggers et al and Katayama disclose the radio receiver of claim 1, where Eggers et al disclose the first audio power amplifier (42) is connected with at least one speaker (5).

Regarding claim 18, Eggers et al disclose a radio receiver comprising:

a control unit (41);

a first tuner (34) connected with the control unit, and the control unit configured to tune the first tuner to a first tuner frequency setting; a second tuner (35) connected with the control unit and the control unit configured to tune the second tuner to a second tuner frequency setting (col 5, lines 21-44);

the control unit (41) connected with the first tuner (34) and the second tuner (35) configured to generate a first audio output signal as a function of the first frequency

setting of the first tuner and a second audio output signal as a function of the second frequency setting of the second tuner (see fig. 3; col 3, lines 16–53; col 2, lines 10-12; col 6, lines 4-29);

a first audio power amplifier (42) connected with the switching circuit (41) and the first audio power amplifier configured to receive the first audio output signal; and

a second audio power amplifier (43) connected with the switching circuit (41) configured to receive the second audio output signal.

Eggers et al do not disclose a digital signal processor connected with the first tuner and the second tuner, and the DSP configured to generate a first digitally processed audio output signal as a function of the first tuner frequency setting and to also generate a second digitally processed audio signal as a function of the second tuner frequency setting. Katayama discloses a digital signal processor (DSP) connected with the first tuner () and the second audio source (CD) and the DSP configured to generate a first digitally processed audio output signal as a function of the first tuner frequency setting and to also generate a second digitally processed audio signal as a function of the second tuner frequency setting (fig. 11; col 1, line 16 - col 2, line 30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a digital signal processor in the receiver of Eggers et al in order to digitally process and enhance the sound of the audio signals.

Regarding claim 19, Eggers et al and Katayama disclose the radio receiver of claim 18, where the control unit (41) is configured to tune the first and second tuner to the first and second frequency settings.

Regarding claim 20, Eggers et al and Katayama disclose the radio receiver of claim 18, wherein Moers discloses the receiver comprises a first and second radio data system decoder (4 and 7) connected with the respective first tuner (3) and second tuner (2) and configured to provide respective first and second tuner RDS data; the control unit (12) is further configured to receive the respective first tuner RDS data and second tuner RDS data. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have two decoders in order to extract RDS data from the demodulated data of each respective tuner as suggested by Moers (col 4, lines 42-44).

Regarding claim 21, Eggers et al and Katayama disclose the radio receiver of claim 20, where Moers discloses the first tuner RDS data (output of 4) comprises a list of first tuner alternative frequencies for the first tuner frequency setting (col 5, lines 6-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have AFs for the first tuner to tune to another frequency with the same program which has better reception.

Regarding claim 22, Eggers et al and Katayama disclose the radio receiver of claim 21, where Moers discloses the first tuner (3) is configured to produce a first tuner signal quality signal, and the control unit is configured to receive the first tuner signal quality signal and to detect that the first tuner signal quality signal falls below a predetermined level of quality and, in response to the detection, to tune the first tuner to one of the listed first tuner an alternate alternative frequencies (col 5, lines 48-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to tune to an AF having a better FM reception as is well known in an FM receiver.

Regarding claim 26, Eggers et al and Katayama disclose the radio receiver of claim 25, where the second tuner RDS data (output of 7) comprises a list of alternative frequencies for the second tuner (2) frequency setting (col 4, lines 42-44; col 5, lines 6-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have AFs to tune the second tuner to another frequency with the same program which has better reception.

Regarding claim 27, Eggers et al and Katayama disclose the radio receiver of claim 22, where Moers discloses the second tuner (2) is configured to generate a second tuner signal quality signal, and the control unit (12) is configured to detect that the second tuner signal quality output is less than a predetermined level of quality and, in response to the detection, to tune the second tuner to one of the listed second tuner an alternative frequencies (col 5, lines 6-67; col 6, lines 36-37).

Regarding claim 28, Eggers et al and Katayama disclose the radio receiver of claim 25, where the radio data system decoder (7) is configured to provide data to the control unit (12) associated with the second frequency setting.

Regarding claim 11, Eggers et al and Katayama disclose the radio receiver of claim 9, where Katayama discloses a display unit (DS) coupled to the control unit (CPU), and the control unit is configured to receive the first tuner data (from 3) and to control the display unit to display the first tuner data (col 1, lines 61-63).

3. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eggers et al, Katayama, and Usui et al (US 5,678,217).

Regarding claim 29, Eggers et al and Katayama disclose the radio receiver of claim 26, where Katayama do not disclose a display unit (DS; fig. 11) operably coupled to the control unit, and the control unit further configured to control the display unit to display a portion of the first tuner RDS data and the second tuner RDS data (col 1, lines 61-63). Eggers and Katayama do not disclose displaying a portion of the first tuner RDS data and the second tuner RDS data. Usui et al disclose displaying a portion of the first tuner RDS data and the second tuner RDS data (col 3, lines 53-57). It would have been obvious to one of ordinary skill in the art at the time the invention was made to display via a split screen mode in order to display data from the signals of both tuners.

4. Claims 16-17, 30, 35, and 42-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eggers et al (US 5,910,996) in view of Katayama and further in view of Huemann et al (US 5,661,811).

Regarding claim 16, Eggers et al and Katayama disclose the radio receiver of claim 1, where Eggers et al and Katayama do not disclose the second audio power amplifier is connected with a headphone jack. Huemann et al disclose a second power amplifier (24) is connected with a headphone jack (38). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a headphone jack connected to the power amplifier in order to allow back passenger to hear the audio signal without hearing the front passenger's audio output or vice versa.

Regarding claim 30, Eggers et al and Katayama disclose the radio receiver of claim 18, wherein Eggers et al disclose the power amplifiers are connected with a

vehicle 's speaker system (col 2, line 66 – col 3, line 6). Eggers et al and Katayama do not disclose the first audio power amplifier is connected with a vehicle speaker system and the second audio power amplifier is connected with a headphone jack. Huemann et al disclose the first audio power amplifier (18) is connected with a vehicle speaker system (20) and the second audio power amplifier (38) is connected with a headphone jack (36). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the speaker system of Eggers et al and Moers in a vehicle with a headphone jack in order to allow the tuned signal to be provided to passengers traveling in a car and allow the back passenger to hear the audio signal without hearing the front passenger's audio output or vice versa.

Regarding claims 17 and 35, Eggers et al and Katayama disclose radio receiver of claims 1 and 18 respectively, where Eggers et al disclose the power amplifiers are connected with a vehicle 's speaker system (col 2, line 66 – col 3, line 6). Eggers et al and Moers do not disclose the first audio power amplifier is connected with a vehicle speaker system and the second audio power amplifier is connected with a headphone jack. Huemann et al disclose the first audio power amplifier (18) is connected with a vehicle speaker system (20) and the second audio power amplifier (38) is connected with a headphone jack (36). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the speaker system of Eggers et al and Moers in a vehicle with a headphone jack in order to allow the tuned signal to be provided to passengers traveling in a car and allow the back passenger to hear the audio signal without hearing the front passenger's audio output or vice versa.

Regarding claim 42, Eggers et al disclose a method of providing two radio tuner audio outputs comprising:

receiving (via 41) first and second radio tuner audio signals from respective first and second radios (34 and 35); generating respective first (output from 34) and second audio signal (output from 35) based on the respective first and second radio tuner audio signals; generating respective first and second amplified audio signal (ouput from 42 and 43) based upon the respective first and second audio signals; generating respective first and second radio tuner signal quality signals related to the first and second radio tuner audio signals (at output of 39 and 40) (fig. 3; col 2, lines 35-41; col 3, lines 16-30; col 6, lines 5-10); and outputting the first amplified processed audio output to a speaker (39). Eggers et al do not disclose the first and second audio signals are digitally processed generating respective first and second quality detections in response to detection that the first and second radio tuner signal quality signals are less than a predetermined quality threshold value; respectively tuning the first and second radio tuners to respective alternative frequencies in response to the respective first and second quality detections. Katayama discloses the first and second audio signals are digitally processed (via DSP) (fig. 11) (col 1, line 16 - col 2, line 30).
Eggers and Katayama do not disclose generating respective first and second quality detections in response to detection that the first and second radio tuner signal quality signals are less than a predetermined quality threshold value; respectively tuning the first and second radio tuners to respective alternative frequencies in response to the respective first and second quality detections. In related art, Moers discloses

generating respective first and second quality detections in response to detection that the first and second radio tuner signal quality signals are less than a predetermined quality threshold value (based on the quality of each respective tuner being detected, AFs of that tuner are provided which carry the same program of the respective tuner); respectively tuning the first and second radio tuners to respective alternative frequencies in response to the respective first and second quality detections (col 5, lines 6-67; col 6, lines 36-37). It would have been obvious to one of ordinary skill in the art at the time the invention was made to digitally process the audio signals of Eggers et al and to change to AFs of each respective tuner in order to digitally process and enhance the sound of the audio signals and to tune to other frequencies carrying the same program of the respective tuner of Eggers et al. Eggers and Katayama do not disclose outputting the second amplified processed audio output to a headphone interface adapted to provide the second amplified processed audio output to a headphone. However, replacing a speaker with a headphone is well known and notoriously old in the art as disclosed by Huemann's headphone (36). It would have been obvious to one of ordinary skill in the art at the time the invention was made to output the second amplified signal to a headphone instead of the speaker of Eggers in order to allow the user to privately listen to the audio programs without disturbing other people.

Regarding claim 43, Moers further disclose generating (via decoder 4, 7) respective first and second RDS data based on the first and second radio tuner audio signals, the respective first and second RDS data including the respective first and second alternative frequencies for the respective first and second radio tuner audio

signals (col 5, lines 6-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made each of the tuner have AFs respectively to tune to another frequency broadcasting the same program which has better reception.

Regarding claim 44, Eggers further disclose the first and second radios (34 and 35) is configured to be installed in a vehicle (col 7, line 1-3).

Regarding claim 45, Eggers further disclose the speaker is positioned to provide audio to a driver of the vehicle (col 7, lines 1-3).

Regarding claim 46, Huemann et al disclose the where the headphone interface is positioned to provide audio to a passenger of the vehicle (via headphone jack 36). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the headphone interface of Eggers et al and Katayama to be provided to passengers in a vehicle in order to allow one passenger to hear the audio signal independently without hearing the audio output of the others or vice versa.

4. Claims 2-4, 6, 8-9, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eggers et al (US 5,910,996) in view of Katayama et al (US 7,133,730) (hereinafter Katayama) and further in view of Moers (US 6,957,053).

Regarding claim 2, Eggers et al and Katayama disclose the radio receiver of claim 1, wherein Katayama discloses a control unit (CPU) connected to different audio sources. Eggers and Katayama do not disclose the receiver comprising a control unit connected with the first tuner and the second tuner. In related art, Moers discloses the receiver comprising a control unit (12) connected (via 4) with the first tuner (3) and (via 7) the second tuner (2). It would have been obvious to one of ordinary skill in the art at

the time the invention was made to have a control unit connected to both tuners in order to send control instructions to each of the tuners.

Regarding claim 3, Eggers et al, Katayama, and Moers disclose the radio receiver of claim 2, wherein Moers discloses the control unit (12) is operable to generate a first tuner control output (via I/O 11) that is used to set the first tuner (3) to a first selected frequency (col 3, lines 45-48).

Regarding claim 4, Eggers et al, Katayama and Moers disclose radio receiver of claim 3, where Moers disclose the control unit (12) is operable to generate a second tuner control output (via I/O control 11) that is used to set the second tuner (2) to a second selected frequency (col 3, lines 45-48).

Regarding claim 6, Eggers et al, Katayama, and Moers disclose the radio receiver of claim 5, where Moers disclose first tuner (3) is configured to generate a first tuner signal quality signal, and where the control unit (12) is configured to receive the first tuner signal quality signal, and to detect that the first tuner signal quality signal is less than a predetermined threshold of signal quality, and in response to the detection, to adjust the first tuner to a first tuner alternate frequency setting (col 5, lines 6-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to change the first tuner frequency to an AF which contain the same program which has a clearer reception.

Regarding claim 8, Eggers et al, Katayama, and Moers disclose the radio receiver of claim 6, where Moers discloses where the second tuner is configured to generate a second tuner signal quality signal, and the control unit is further configured

to receive the second tuner signal quality signal, and to detect that the second tuner signal quality is less than the predetermined threshold of signal quality, and in response to the detection operable to adjust the second tuner to a second tuner an alternate frequency setting (col 3, line 64 - col 4, line 4; col 6, lines 36-37). It would have been obvious to one of ordinary skill in the art at the time the invention was made to change the second tuner frequency to an AF which contain the same program which has a clearer reception.

Regarding claim 9, Eggers et al and Katayama disclose the radio receiver of claim 1, wherein Eggers et al and Katayama do not disclose a first radio data system decoder connected with the first tuner and a control unit and the first radio data decoder is configured to generate first tuner data related to the first tuner. Moers disclose the receiver comprising a first radio data system decoder (4) connected with the first tuner (3) and a control unit (12) and the first radio data decoder is configured to generate first tuner data related to the first tuner. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a decoder and a control unit in order to extract RDS data from the demodulated data as suggested by Moers (col 4, lines 42-44).

Regarding claim 12, Eggers et al, Katayama disclose the radio receiver of claim 11, wherein they do not disclose a second radio data system decoder. Moers discloses further comprising a second radio data system decoder (7) connected with the second tuner (2) and the control unit (12) and the second radio data system decoder (7) is configured to provide second tuner data related to the second tuner to the control unit,

and wherein Miyake discloses the control unit (7) is further configured to control the display unit (13) to display the second tuner data (fig. 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a second decoder to decode RDS data of the second tuner if the second tuner also contain RDS data.

Response to Arguments

5. Applicant's arguments with respect to claims 1-6, 8-9, 11-12, 15-18, 20-22, 26-27, 29-30 have been considered but are moot in view of new grounds of rejection.

Regarding claim 42, applicant argues the cited reference, Moers does not disclose "tuning the second radio tuner to a second tuner alternative frequency in response to the second quality detection" (col 6, lines 34-62). However, Moers discloses while scanning, the scanning is interrupted to measure the signal reception quality of a selected transmitter frequency and to tune to it (col 6, lines 34-62).

Allowable Subject Matter

5. Claim 5 is allowable over the cited prior art.

6. The following is an examiner's statement of reasons for allowance:

Regarding claim 5, the cited prior art discloses a radio receiver comprising: a first tuner configured to connect with an antenna and to generate a first audio a second tuner configured to connect with the antenna and to generate a second audio a digital signal processor configured to receive the first audio signal and the second audio

signal, to also digitally process the first audio signal to generate a first processed audio output signal, and to also digitally process the second audio signal to generate a second processed audio output signal; a first audio power amplifier connected with the digital signal processor, and configured to receive the first processed audio output signal; and a second audio power amplifier connected with the digital signal processor, and configured to receive the second processed audio output signal. However, the cited prior art fail to disclose further where the first audio signal and the second audio signal are digitally processed simultaneously by the digital signal processor.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lana N. Le whose telephone number is (571) 272-7891. The examiner can normally be reached on M-F 9:30-18:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LNL
/lnl/

Lana N. Le
9-10-07

LANA LE
PRIMARY EXAMINER